

ASSIGNMENT - 4

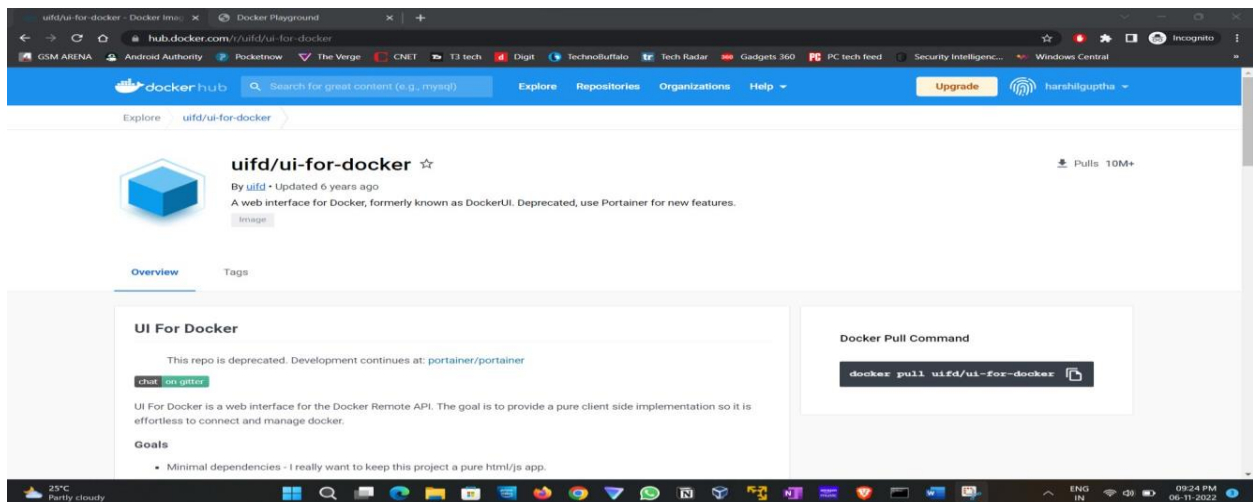
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1.Pull an Image from docker hub and run it in docker playground.

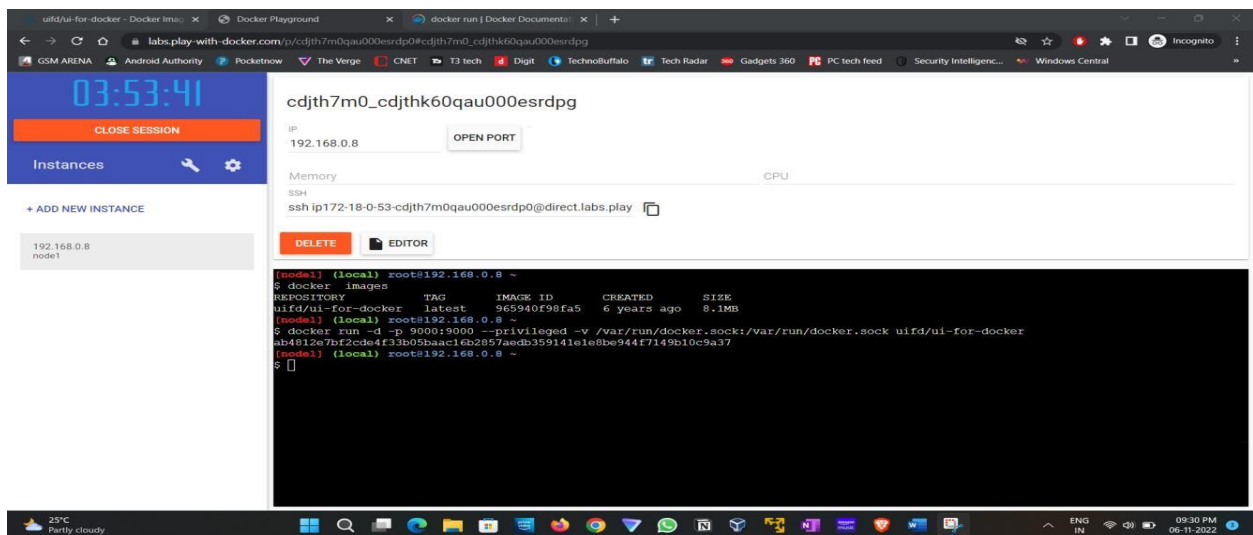
```
docker pull uifd/ui-for-docker
```

```
docker run -d -p 9000:9000 --privileged -v /var/run/docker.sock:/var/run/docker.sock
```

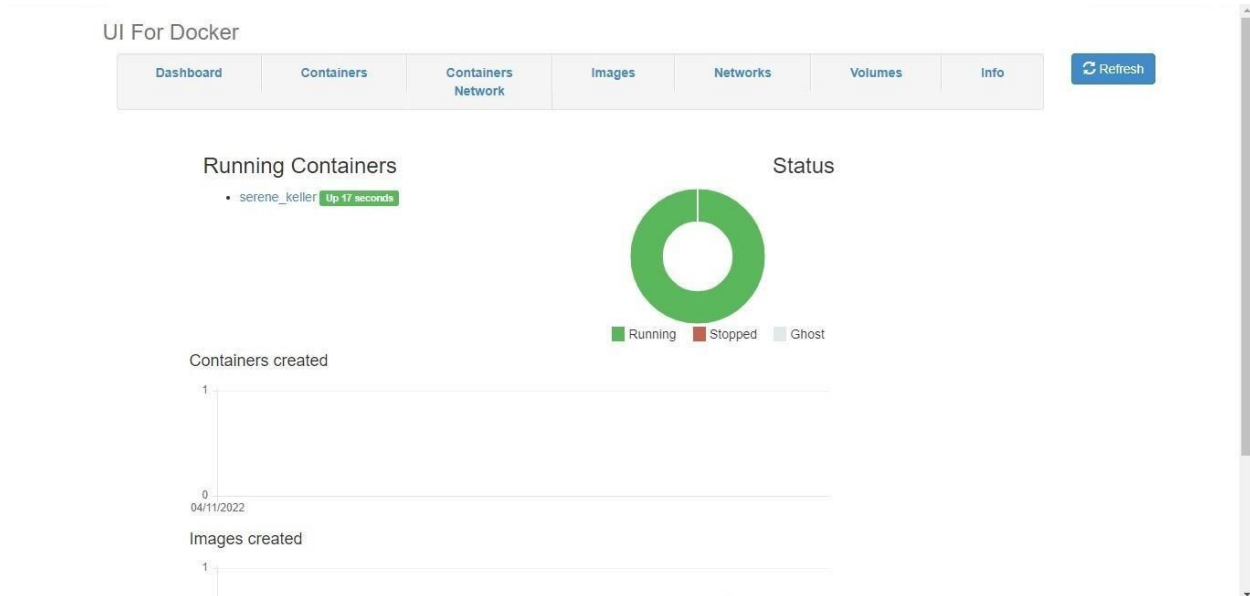
```
uifd/ui-for-docker
```



Docker playground:



Docker UI:



2.Create a docker file for the job portal application and deploy it in Docker desktop application.

DockerFile

```
Dockerfile - Notepad
File Edit Format View Help
FROM python:3.8
WORKDIR /app
ADD . /app
COPY requirements.txt /app
RUN python3 -m pip install -r requirements.txt
EXPOSE 5000
CMD ["python", "app.py"]
```

Build Docker image

```
C:\Windows\System32\cmd.exe
E:\Study material\Sem 7\IDM\Exercise\Assignment4>docker build -t hello-world .
[+] Building 160.4s (10/10) FINISHED
=> [internal] load build definition from Dockerfile
=> [internal] load dockerignore
=> [internal] load metadata for docker.io/library/python:3.8
=> [1/5] FROM docker.io/library/python:3.8@sha256:080d750211778a2dd03ecc4b10add051f0f77ef3f1e3f3020d0519190b0aad5
=> sha256:080d750211778a2dd03ecc4b10add051f0f77ef3f1e3f3020d0519190b0aad5 149.99s
=> sha256:080d750211778a2dd03ecc4b10add051f0f77ef3f1e3f3020d0519190b0aad5 0.00s
=> sha256:17c9e0447d3387e5a1c07d4f09d6a05ec1408e90029fa3aa55470d4504f7770 55.05MB / 55.05MB
=> sha256:4ddc0027acc18a128100724f04a00c0a2f10d0eaf15af7f0ad70a700 19.50MB / 19.50MB
=> sha256:080d750211778a2dd03ecc4b10add051f0f77ef3f1e3f3020d0519190b0aad5 1.80kB / 1.80kB
=> sha256:10a101fc7737ef00912c0e0f48001a0f0010a7f16c5c700b0000000000000000 2.22kB / 2.22kB
=> sha256:de44dc0e000100007377e10220a914da403bc93fa79003c10f2dcf10000001 5.15MB / 5.15MB
=> sha256:a7909cf0f0000000000000000000000000000000000000000000000000000000 54.50MB / 54.50MB
=> sha256:7af0f00000000000000000000000000000000000000000000000000000000000 190.07MB / 190.07MB
=> sha256:10a101fc7737ef00912c0e0f48001a0f0010a7f16c5c700b0000000000000000 133.18s
=> sha256:20079a221304cf0d0000000000000000000000000000000000000000000000000 6.20MB / 6.20MB
=> sha256:4ddc0027acc18a128100724f04a00c0a2f10d0eaf15af7f0ad70a700 17.30MB / 17.30MB
=> sha256:a7909cf0f0000000000000000000000000000000000000000000000000000000 67.34s
=> extracting sha256:17c9e0447d3387e5a1c07d4f09d6a05ec1408e90029fa3aa55470d4504f7770 10.99s
=> extracting sha256:de44dc0e000100007377e10220a914da403bc93fa79003c10f2dcf10000001 1.35s
=> extracting sha256:4ddc0027acc18a128100724f04a00c0a2f10d0eaf15af7f0ad70a700 1.00s
=> extracting sha256:a7909cf0f0000000000000000000000000000000000000000000000000000000 13.34s
=> extracting sha256:7af0f00000000000000000000000000000000000000000000000000000000000 13.60s
=> extracting sha256:10a101fc7737ef00912c0e0f48001a0f0010a7f16c5c700b0000000000000000 0.42s
=> extracting sha256:20079a221304cf0d0000000000000000000000000000000000000000000000000 1.15s
=> extracting sha256:aa3c3250f0b33000000000000000000000000000000000000000000000000000 0.00s
=> extracting sha256:7af0f00000000000000000000000000000000000000000000000000000000000 0.26s
=> [internal] load build context
=> transferring context: 1.15kB
=> [2/5] WORKDIR /app
=> [3/5] ADD . /app
=> [4/5] COPY requirements.txt /app
=> [5/5] RUN python3 -m pip install -r requirements.txt
=> exporting to image
=> exporting layers
=> writing image sha256:f08fcd0000000000000000000000000000000000000000000000000000000000
=> naming to docker.io/library/hello-world
Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
```

Deploy it on Docker hub

Docker Desktop Upgrade plan

Containers Images Volumes Dev Environments BETA

Extensions BETA Add Extensions

Images on disk Last refresh: Never 1 images Refresh to see disk usage Clean up

Images Give feedback

LOCAL REMOTE REPOSITORIES

Search

☐ In use only

NAME ↑	TAG	IMAGE ID	CREATED	SIZE
hello-world	latest	f68fcdce5bb6	less than a minute ago	919.36 MB

RAM 3.66GB CPU 0.08% Connected to Hub v4.13.1

```
C:\Windows\System32\cmd.exe
Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
hello-world   latest    f68fcdce5bb6   5 minutes ago  919MB

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker login
Authenticating with existing credentials...
Login Succeeded

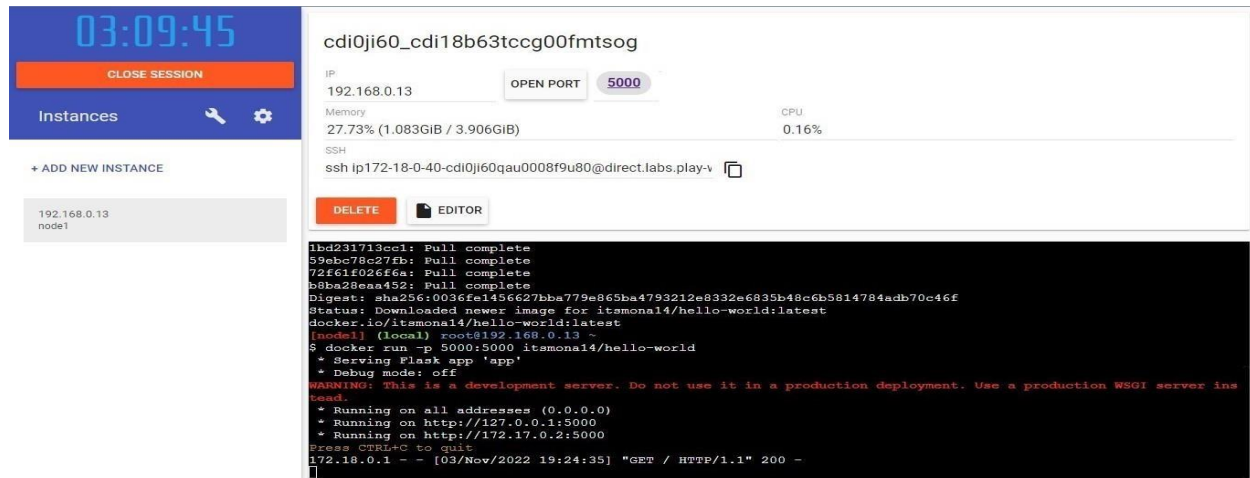
Logging in with your password grants your terminal complete access to your account.
For better security, log in with a limited-privilege personal access token. Learn more at https://docs.docker.com/go/access-tokens/

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker tag hello-world itsmona14/hello-world

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker push itsmona14/hello-world
Using default tag: latest
The push refers to repository [docker.io/itsmona14/hello-world]
373eb5cf4ceb: Pushed
1e505dc1de5e: Pushed
090c85cb75c5: Pushed
ded8299b8f1a: Pushed
1fe0699af9f7: Mounted from library/python
156568a71809: Mounted from library/python
5fca8a94d542: Mounted from library/python
6b183c62e3d7: Mounted from library/python
882fd36bfd35: Mounted from library/python
d1dec9917839: Mounted from library/python
d38adf39e1dd: Mounted from library/python
4ed121b04368: Mounted from library/python
d9d07d703dd5: Mounted from library/python
latest: digest: sha256:46ff91edc98aaa5d7fff51ba708b6498af3c4f64612d9a990bf437497555fd82 size: 3049

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>
```

Tested it using Docker playground



cdi0ji60_cdi18b63tccg00fmtsog

IP: 192.168.0.13 OPEN PORT 5000

Memory: 27.73% (1.083GiB / 3.906GiB) CPU: 0.16%

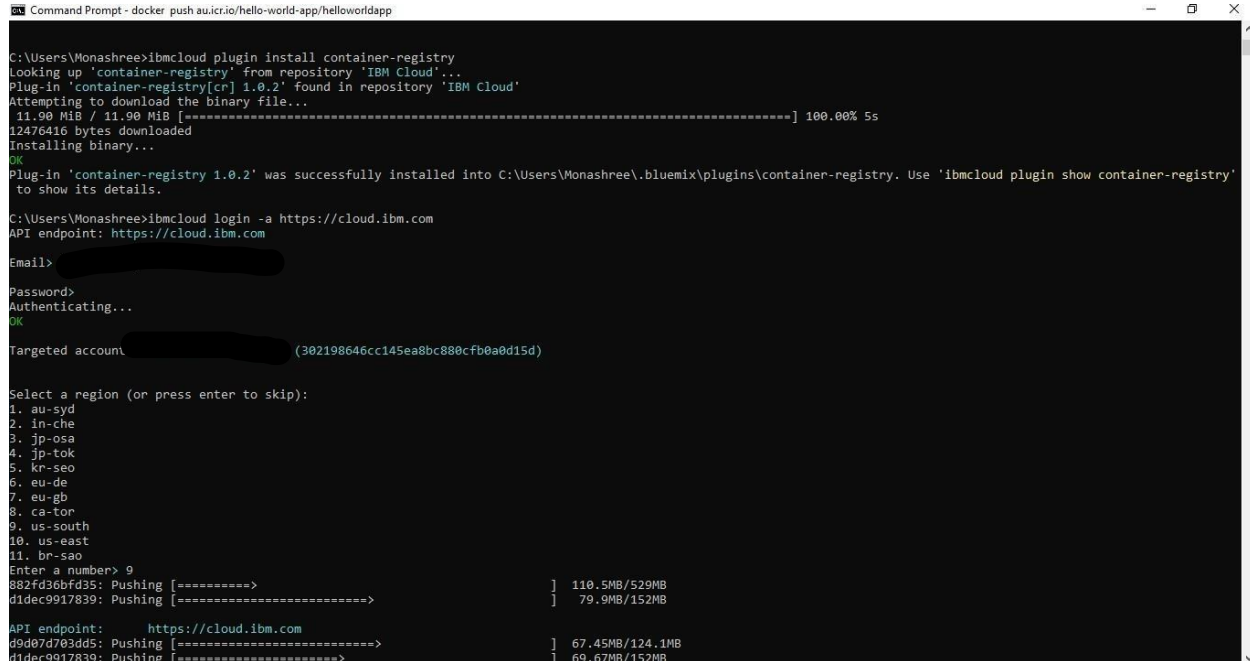
SSH: ssh ip172-18-0-40-cdi0ji60qau0008f9u80@direct.labs.play-v

DELETE EDITOR

```
1bd231713cc1: Pull complete
596bc78c27eb: Pull complete
72f61f026f6a: Pull complete
b8ba28eaa452: Pull complete
Digest: sha256:0036fe1456627bba779e865ba4793212e8332e6835b48c6b5814784adb70c46f
Status: Downloaded newer image for itamona14/hello-world:latest
docker.io/itamona14/hello-world:latest
[itamona1] (local) root@192.168.0.13 ~
$ docker run -p 5000:5000 itamona14/hello-world
* Serving Flask app 'app'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://172.17.0.2:5000
Press CTRL+C to quit
172.18.0.1 - - [03/Nov/2022 19:24:35] "GET / HTTP/1.1" 200 -
```

3.Create a IBM container registry and deploy hello world app or job portal app.

My image link: au.icr.io/hello-world-app/hello-world



```
Command Prompt - docker push au.icr.io/hello-world-app/hello-worldapp

C:\Users\Monashree>ibmcloud plugin install container-registry
Looking up 'container-registry' from repository 'IBM Cloud'...
Plug-in 'container-registry[cr] 1.0.2' found in repository 'IBM Cloud'
Attempting to download the binary file...
11.90 MiB / 11.90 MiB [=====] 100.00% 5s
12476416 bytes downloaded
Installing binary...
OK
Plug-in 'container-registry 1.0.2' was successfully installed into C:\Users\Monashree\bluemix\plugins\container-registry. Use 'ibmcloud plugin show container-registry'
to show its details.

C:\Users\Monashree>ibmcloud login -a https://cloud.ibm.com
API endpoint: https://cloud.ibm.com

Email> [redacted]
Password> [redacted]
Authenticating...
OK
Targeted account [redacted] (302198646cc145ea8bc880cfb0a0d15d)

Select a region (or press enter to skip):
1. au-syd
2. in-che
3. jp-osa
4. jp-tok
5. kr-seo
6. eu-de
7. eu-gb
8. ca-tor
9. us-south
10. us-east
11. br-sao
Enter a number> 9
882fd36bfd35: Pushing [=====] 110.5MB/529MB
d1dec9917839: Pushing [=====] 79.9MB/152MB

API endpoint: https://cloud.ibm.com
d9d07d703dd5: Pushing [=====] 67.45MB/124.1MB
d1dec9917839: Pushing [=====] 69.67MB/152MB
```

```
C:\Windows\System32\cmd.exe - docker run -p 5000:5000 au.icr.io/hello-world-app/hello-world

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker tag hello-world au.icr.io/hello-world-app/hello-world

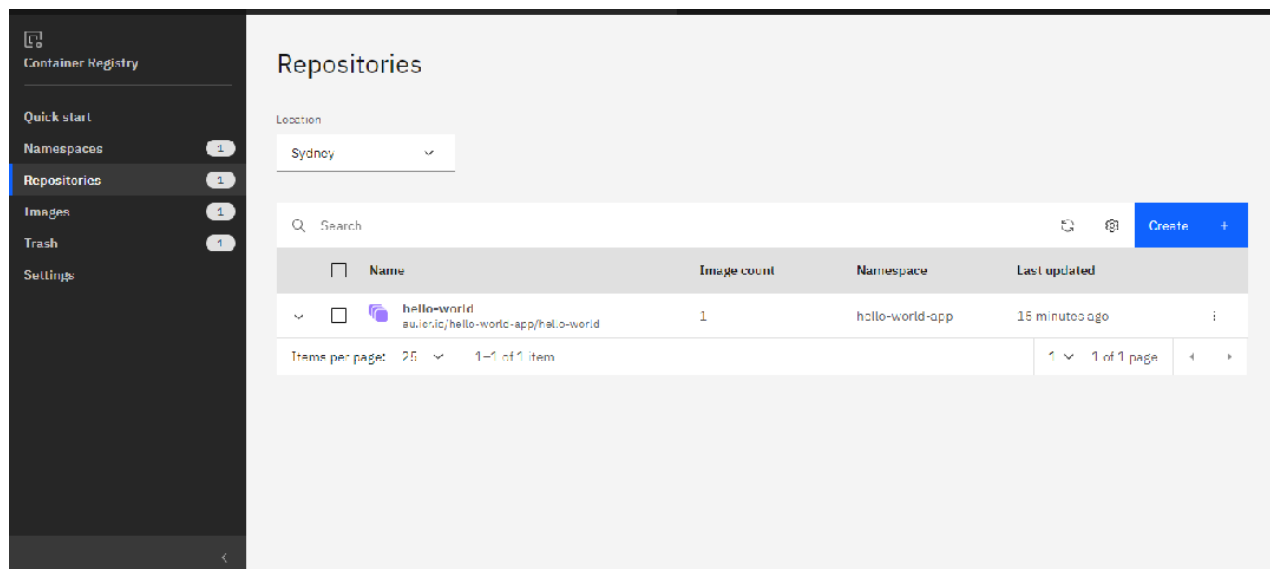
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker push au.icr.io/hello-world-app/hello-world
Using default tag: latest
The push refers to repository [au.icr.io/hello-world-app/hello-world]
492bdc5cc089: Pushed
006e0938fc5e: Pushed
4bb20c08724f: Pushed
402dea3c8533: Pushed
f5d161bb139: Pushed
1569e0d95ce6: Pushed
d9e08da15d0c: Pushed
6b183c62e3d7: Mounted from hello-world-app/hello-world-app
882f436bf3d5: Mounted from hello-world-app/hello-world-app
d1dec9917839: Mounted from hello-world-app/hello-world-app
d38adf39e1dd: Mounted from hello-world-app/hello-world-app
4ed121b04368: Mounted from hello-world-app/hello-world-app
09d07d703dd5: Mounted from hello-world-app/hello-world-app
latest: digest: sha256:0036fe1456627bba779e865ba4793212e8332e6835b48c6b5814784adb76c46f size: 3049

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>ibmcloud cr image-list
Listing images...

Repository          Tag    Digest          Namespace      Created      Size    Security status
au.icr.io/hello-world-app/hello-world latest 0036fe145662    hello-world-app 12 minutes ago 356 MB -

OK

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker run -p 5000:5000 au.icr.io/hello-world-app/hello-world
* Serving flask app 'app'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://172.0.0.1:5000
* Running on http://172.17.0.2:5000
Press CTRL+C to quit
172.17.0.1 - - [03/Nov/2022 19:35:58] "GET / HTTP/1.1" 200 -
```



4.Create a Kubernetes cluster in IBM cloud and deploy hello world image or job portal image and also expose the same app to run in node port.

<https://raw.githubusercontent.com/itsmona14/IBM-Assignment-cloud/main/deployment.yaml>

```
apiVersion: v1
kind: Service
metadata:
  name: hello-world-deploymentspec:
ports:
- port: 5000
  targetPort: 5000
selector:
```

```

app: hello-world
---
apiVersion: apps/v1kind: Deployment metadata:
  name: hello-world-deploymentspec:
    replicas: 1selector:
      matchLabels:
        app: hello-worldtemplate:
          app: hello-worldspec:
            containers:
              - name: hello-world
                image: au.icr.io/hello-world-app/hello-worldimagePullPolicy: Always
            ports:
              - containerPort: 5000

```

Clusters / mycluster-free Normal Expires in 29 days [Add tags](#) [Help](#) [Kubernetes dashboard](#) [Actions...](#)

Overview

- Worker nodes
- Worker pools
- DevOps new

Expires in 29 days:
Be sure to back up your data, your cluster will be deleted in 29 days. To access the full capabilities of the service, try out a [standard cluster](#).

Node status
1 of 1
Normal
[Details](#)

Add-on status
0 of 0
Normal
[Details](#)

Master status
Normal
Normal
[Docs](#)

Ingress status
Unknown
[Docs](#)

Details

Cluster ID cd1f30c50a6e4hav0k1g	Version 1.24.7_1542	Infrastructure Cloudic	Zones Milan 01
Created 04/11/2022, 01:12	Resource group Default	Image security enforcement Enable	

kubernetes default [Search](#) [+](#) [🔔](#) [👤](#)

Workloads > Deployments

Workloads

- Cron Jobs
- Daemon Sets
- Deployments**
- Jobs
- Pods
- Replica Sets
- Replication Controllers
- Stateful Sets

Service

- Ingresses
- Ingress Controllers
- Services

Config and Storage


- Config Maps

CPU Usage

Memory Usage

Deployments

Name	Images	Labels	Pods	Created
hello-world-deployment	Show all	-	1 / 1	24 minutes ago

 **kubernetes**

default

Search

+ 🔔 👤

Workloads > Pods > hello-world-deployment-6c75b9c898-p4ntv > Logs

Workloads ^N

Cron Jobs

Daemon Sets

Deployments

Jobs

Pods

Replica Sets

Replication Controllers

Stateful Sets

Service

Ingresses ^N

Ingress Classes

Services ^N

Config and Storage

Logs from hello world in hello world dep...

```
* Serving Flask app "app"
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://172.30.82.142:5000
Press CTRL+C to quit
```

Logs from Nov 4, 2022 to Nov 4, 2022 UTC

cu-do.containers.cloud.ibm.com/kubeproxy/clusters/cdi/33f0a6mchav5kg/...